

Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development

2008

Phase III Inventory—
Onshore United States



In Compliance with the Energy Act of 2000, P. L. 106-469 § 604 as Amended by the Energy Policy Act of 2005, P. L. 109-58 § 364

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**Prepared by the
U.S. Departments of the Interior,
Agriculture, and Energy**



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Table of Contents

Executive Summary	xxv
The Mandate from Congress	xxv
Methodology	xxvii
Results	xxviii
Compliance with the Law	xxix
1.0 Introduction	1
1.1 Background	2
1.2 The EPCA as Amended by the EPAct 2005	4
1.3 The EPCA Phase I and Phase II Inventories.	5
1.4 The National Petroleum Council Report, 2003	5
1.5 Approach.	5
1.6 Roles of the Agencies	6
1.7 Intended Use	8
1.8 Products/Future Direction	9
2.0 Methodology.	11
2.1 Procedures for Collecting and Preparing Land Status and Oil and Gas Access Constraints	13
2.1.1 Federal Land Status	13
2.1.1.1 Sources of Land Status Data.	13
2.1.1.2 Land Status Data Preparation	13
2.1.1.3 Land Status Data—Related Caveats.	35
2.1.2 Federal Oil and Gas Availability for Leasing and Lease Stipulations	36
2.1.2.1 Sources of Lease Stipulation Data.	36
2.1.2.2 Lease Stipulation Data Preparation	41
2.1.2.3 Lease Stipulation Data—Related Caveats.	41
2.1.3 Federal Drilling Permit Conditions of Approval	42
2.1.3.1 Sources of Conditions of Approval Data	42
2.1.3.2 Conditions of Approval Data Preparatio.	43
2.1.3.3 Conditions of Approval Data—Related Caveats	44
2.1.4 Extrapolation of Federal Lands and Resources Outside Detailed Study Areas	44
2.2 Procedures for Collecting and Preparing Oil and Gas Resource, Reserves Growth, and Reserves Data	44
2.2.1 Undiscovered Oil and Gas Resources	44
2.2.1.1 Sources of Oil and Gas Resources Data	44
2.2.1.2 Oil and Gas Resource Data Preparation	46
2.2.1.3 Oil and Gas Resource Data—Related Caveats	56
2.2.2 Proved Ultimate Recovery Growth (“Reserves Growth”).	57
2.2.2.1 Sources of Remaining Proved Ultimate Recovery Data.	59
2.2.2.2 Remaining Proved Ultimate Recovery Data Preparation	59

Table of Contents

2.2.2.3	Remaining Proved Ultimate Recovery Estimate Data— Related Caveats	60
2.2.3	Oil and Natural Gas Resource Maps.	62
2.2.4	Proved Reserves	105
2.2.4.1	Sources of Proved Oil and Gas Reserves Data	105
2.2.4.2	Proved Oil and Gas Reserves Data Preparation	105
2.2.4.3	Proved Reserves Data—Related Caveats	105
2.3	Data Integration and Spatial Analysis	109
2.3.1	Categorization of Oil and Gas Access Constraints	109
2.3.1.1	Data Integration and Spatial Analysis-Related Caveats	112
2.3.2	Analytical Modeling of Federal Lands and Resources	112
3.0	Results	113
3.1	Study Area Features	113
3.1.1	Northern Alaska	113
3.1.2	Central Alaska – Yukon Flats	123
3.1.3	Southern Alaska	123
3.1.4	Eastern Oregon-Washington.	123
3.1.5	Ventura Basin	136
3.1.6	Eastern Great Basin	136
3.1.7	Uinta-Piceance Basin	136
3.1.8	Paradox Basin	155
3.1.9	San Juan Basin.	155
3.1.10	Montana Thrust Belt.	155
3.1.11	Williston Basin.	174
3.1.12	Powder River Basin	174
3.1.13	Wyoming Thrust Belt	187
3.1.14	South Western Wyoming.	187
3.1.15	Denver Basin.	187
3.1.16	Florida Peninsula	206
3.1.17	Black Warrior Basin	206
3.1.18	Appalachian Basin.	225
3.1.19	Extrapolated Results for Alaska	225
3.1.20	Extrapolated Results for the Western Region	225
3.1.21	Extrapolated Results for the Eastern Region	235
3.2	Regional Features	235
4.0	Additional Federal Land Access Issues	245
4.1	Issues Directly Impacting Access	245
4.2	Issues Indirectly Impacting Access	272

Appendices

Appendix 1	Acronyms and Abbreviations . . . . .	.275
Appendix 2	Glossary of Terms . . . . .	.279
Appendix 3	Federal Land Status Preparation. . . . .	.291
Appendix 4	Federal Oil and Gas Lease Stipulation Data Preparation . . . . .	.299
Appendix 5	APD Conditions of Approval Data Preparation . . . . .	.307
Appendix 6	U.S. Geological Survey Methodology for the Assessment of Undiscovered Oil and Gas Resources . . . . .	.319
Appendix 7	Initial Estimates of Remaining Proved Ultimate Recovery Growth. . . . .	.329
Appendix 8	Proved Reserves Estimation and Field Boundary Construction. . . . .	.341
Appendix 9	GIS Methodology . . . . .	.371
Appendix 10	Federal Land Use Planning Documents Used in the Phase III Inventory . . . . .	.389
Appendix 11	Federal Oil and Gas Surface Management Prescriptions - Available on the DVD-ROM and the Website (http://www.blm.gov/epca)	

Figures

Executive Summary

Figure ES-1.	Study Area Locations	xxvi
Figure ES-2.	Simplified Results; Onshore United States— Total Federal Land and Oil and Natural Gas Resources by Accessibility	xxxii
Figure ES-3.	Chart of Results; Onshore United States— Total Federal Land and Oil and Natural Gas Resources by Access Category	xxxiii
Figure ES-4.	Regional Charts	xxxiii

Section 1.0 – Introduction

Figure 1-1.	Study Area Locations	3
-------------	--------------------------------	---

Section 2.0 – Methodology

Figure 2-1.	Federal Land Status Map, Northern Alaska Study Area.	14
Figure 2-2.	Federal Land Status Map, Central Alaska - Yukon Flats Study Area	15
Figure 2-3.	Federal Land Status Map, Southern Alaska Study Area.	16
Figure 2-4.	Federal Land Status Map, Eastern Oregon-Washington Study Area	17
Figure 2-5.	Federal Land Status Map, Ventura Basin Study Area	18
Figure 2-6.	Federal Land Status Map, Eastern Great Basin Study Area	19
Figure 2-7.	Federal Land Status Map, Uinta-Piceance Basin Study Area	20
Figure 2-8.	Federal Land Status Map, Paradox Basin Study Area.	21
Figure 2-9.	Federal Land Status Map, San Juan Basin Study Area	22
Figure 2-10.	Federal Land Status Map, Montana Thrust Belt Study Area	23
Figure 2-11.	Federal Land Status Map, Williston Basin Study Area	24
Figure 2-12.	Federal Land Status Map, Powder River Basin Study Area.	25
Figure 2-13.	Federal Land Status Map, Wyoming Thrust Belt Study Area	26
Figure 2-14.	Federal Land Status Map, Southwestern Wyoming Study Area.	27
Figure 2-15.	Federal Land Status Map, Denver Basin Study Area	28
Figure 2-16.	Federal Land Status Map, Florida Peninsula Study Area	29
Figure 2-17.	Federal Land Status Map, Black Warrior Basin Study Area.	30
Figure 2-18.	Federal Land Status Map, Appalachian Basin Study Area	31
Figure 2-19.	Federal Land Status Map, Alaska Extrapolation Area.	32
Figure 2-20.	Federal Land Status Map, Western Extrapolation Area	33

Figure 2-21.	Federal Land Status Map, Eastern Extrapolation Area	34
Figure 2-22.	Conventional vs. Continuous Accumulations	46
Figure 2-23.	Conceptual Block Diagram of Oil and Gas Plays	46
Figure 2-24.	Total Oil Map, Northern Alaska Study Area.	63
Figure 2-25.	Total Oil Map, Central Alaska - Yukon Flats Study Area	64
Figure 2-26.	Total Oil Map, Southern Alaska Study Area.	65
Figure 2-27.	Total Oil Map, Eastern Oregon-Washington Study Area	66
Figure 2-28.	Total Oil Map, Ventura Basin Study Area	67
Figure 2-29.	Total Oil Map, Eastern Great Basin Study Area.	68
Figure 2-30.	Total Oil Map, Uinta-Piceance Basin Study Area	69
Figure 2-31.	Total Oil Map, Paradox Basin Study Area.	70
Figure 2-32.	Total Oil Map, San Juan Basin Study Area	71
Figure 2-33.	Total Oil Map, Montana Thrust Belt Study Area	72
Figure 2-34.	Total Oil Map, Williston Basin Study Area	73
Figure 2-35.	Total Oil Map, Powder River Basin Study Area.	74
Figure 2-36.	Total Oil Map, Wyoming Thrust Belt Study Area	75
Figure 2-37.	Total Oil Map, Southwestern Wyoming Study Area.	76
Figure 2-38.	Total Oil Map, Denver Basin Study Area	77
Figure 2-39.	Total Oil Map, Florida Peninsula Study Area	78
Figure 2-40.	Total Oil Map, Black Warrior Basin Study Area	79
Figure 2-41.	Total Oil Map, Appalachian Basin Study Area	80
Figure 2-42.	Total Oil Map, Alaska Extrapolation Area.	81
Figure 2-43.	Total Oil Map, Western Extrapolation Area	82
Figure 2-44.	Total Oil Map, Eastern Extrapolation Area	83
Figure 2-45.	Total Natural Gas Map, Northern Alaska Study Area	84
Figure 2-46.	Total Natural Gas Map, Central Alaska - Yukon Flats Study Area	85
Figure 2-47.	Total Natural Gas Map, Southern Alaska Study Area	86
Figure 2-48.	Total Natural Gas Map, Eastern Oregon-Washington Study Area.	87
Figure 2-49.	Total Natural Gas Map, Ventura Basin Study Area	88
Figure 2-50.	Total Natural Gas Map, Eastern Great Basin Study Area	89
Figure 2-51.	Total Natural Gas Map, Uinta-Piceance Basin Study Area	90
Figure 2-52.	Total Natural Gas Map, Paradox Basin Study Area	91
Figure 2-53.	Total Natural Gas Map, San Juan Basin Study Area	92
Figure 2-54.	Total Natural Gas Map, Montana Thrust Belt Study Area.	93
Figure 2-55.	Total Natural Gas Map, Williston Basin Study Area	94
Figure 2-56.	Total Natural Gas Map, Powder River Basin Study Area	95

Figure 2-57.	Total Natural Gas Map, Wyoming Thrust Belt Study Area	96
Figure 2-58.	Total Natural Gas Map, Southwestern Wyoming Study Area	97
Figure 2-59.	Total Natural Gas Map, Denver Basin Study Area	98
Figure 2-60.	Total Natural Gas Map, Florida Peninsula Study Area	99
Figure 2-61.	Total Natural Gas Map, Black Warrior Basin Study Area	100
Figure 2-62.	Total Natural Gas Map, Appalachian Basin Study Area	101
Figure 2-63.	Total Natural Gas Map, Alaska Extrapolation Area	102
Figure 2-64.	Total Natural Gas Map, Western Extrapolation Area	103
Figure 2-65.	Total Natural Gas Map, Eastern Extrapolation Area.	104
Figure 2-66.	Federal Onshore Resource Endowment	109
 Section 3.0 – Results		
Figure 3-1.	Simplified Chart of Results; Onshore United States—Total Federal Land and Oil and Natural Gas Resources by Accessibility	115
Figure 3-2.	Chart of Results; Onshore United States—Total Federal Land and Oil and Natural Gas Resources by Access Category	116
Figure 3-3.	Simplified Chart of Results, Northern Alaska Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility	118
Figure 3-4.	Chart of Results, Northern Alaska Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	119
Figure 3-5.	Federal Land Access Categorization Map, Northern Alaska Study Area	120
Figure 3-6.	Map of Total Federal Oil, Northern Alaska Study Area	121
Figure 3-7.	Map of Total Federal Natural Gas, Northern Alaska Study Area	122
Figure 3-8.	Simplified Chart of Results, Central Alaska - Yukon Flats Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility	125
Figure 3-9.	Chart of Results, Central Alaska - Yukon Flats Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	126
Figure 3-10.	Federal Land Access Categorization Map, Central Alaska - Yukon Flats Study Area	127

Figure 3-11.	Map of Total Federal Oil, Central Alaska - Yukon Flats Study Area . . . . .	.128
Figure 3-12.	Map of Total Federal Natural Gas, Central Alaska - Yukon Flats Study Area . . . . .	.129
Figure 3-13.	Simplified Chart of Results, Southern Alaska Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.131
Figure 3-14.	Chart of Results, Southern Alaska Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.132
Figure 3-15.	Federal Land Access Categorization Map, Southern Alaska Study Area . . . . .	.133
Figure 3-16.	Map of Total Federal Oil, Southern Alaska Study Area . . . . .	.134
Figure 3-17.	Map of Total Federal Natural Gas, Southern Alaska Study Area . . . . .	.135
Figure 3-18.	Simplified Chart of Results, Eastern Oregon-Washington Study Area—Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.138
Figure 3-19.	Chart of Results, Eastern Oregon-Washington Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.139
Figure 3-20.	Federal Land Access Categorization Map, Eastern Oregon-Washington Study Area . . . . .	.140
Figure 3-21.	Map of Total Federal Oil, Eastern Oregon-Washington Study Area . . . . .	.141
Figure 3-22.	Map of Total Federal Natural Gas, Eastern Oregon-Washington Study Area . . . . .	.142
Figure 3-23.	Simplified Chart of Results, Ventura Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.144
Figure 3-24.	Chart of Results, Ventura Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.145
Figure 3-25.	Federal Land Access Categorization Map, Ventura Basin Study Area . . . . .	.146

Figure 3-26.	Map of Total Federal Oil, Ventura Basin Study Area	147
Figure 3-27.	Map of Total Federal Natural Gas, Ventura Basin Study Area . . .	148
Figure 3-28.	Simplified Chart of Results, Eastern Great Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility	150
Figure 3-29.	Chart of Results, Eastern Great Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	151
Figure 3-30.	Federal Land Access Categorization Map, Eastern Great Basin Study Area	152
Figure 3-31.	Map of Total Federal Oil, Eastern Great Basin Study Area	153
Figure 3-32.	Map of Total Federal Natural Gas, Eastern Great Basin Study Area	154
Figure 3-33.	Simplified Chart of Results, Uinta-Piceance Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility	157
Figure 3-34.	Chart of Results, Uinta-Piceance Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	158
Figure 3-35.	Federal Land Access Categorization Map, Uinta-Piceance Basin Study Area	159
Figure 3-36.	Map of Total Federal Oil, Uinta-Piceance Basin Study Area	160
Figure 3-37.	Map of Total Federal Natural Gas, Uinta-Piceance Basin Study Area	161
Figure 3-38.	Simplified Chart of Results, Paradox Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility	163
Figure 3-39.	Chart of Results, Paradox Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	164
Figure 3-40.	Federal Land Access Categorization Map, Paradox Basin Study Area	165
Figure 3-41.	Map of Total Federal Oil, Paradox Basin Study Area	166
Figure 3-42.	Map of Total Federal Natural Gas, Paradox Basin Study Area . . .	167

Figure 3-43.	Simplified Chart of Results, San Juan Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.169
Figure 3-44.	Chart of Results, San Juan Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.170
Figure 3-45.	Federal Land Access Categorization Map, San Juan Basin Study Area . . . . .	.171
Figure 3-46.	Map of Total Federal Oil, San Juan Basin Study Area . . . . .	.172
Figure 3-47.	Map of Total Federal Natural Gas, San Juan Basin Study Area . . . . .	.173
Figure 3-48.	Simplified Chart of Results, Montana Thrust Belt Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.176
Figure 3-49.	Chart of Results, Montana Thrust Belt Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.177
Figure 3-50.	Federal Land Access Categorization Map, Montana Thrust Belt Study Area . . . . .	.178
Figure 3-51.	Map of Total Federal Oil, Montana Thrust Belt Study Area. . . . .	.179
Figure 3-52.	Map of Total Federal Natural Gas, Montana Thrust Belt Study Area . . . . .	.180
Figure 3-53.	Simplified Chart of Results, Williston Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.182
Figure 3-54.	Chart of Results, Williston Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.183
Figure 3-55.	Federal Land Access Categorization Map, Williston Basin Study Area . . . . .	.184
Figure 3-56.	Map of Total Federal Oil, Williston Basin Study Area . . . . .	.185
Figure 3-57.	Map of Total Federal Natural Gas, Williston Basin Study Area. . . . .	.186
Figure 3-58.	Simplified Chart of Results, Powder River Basin Study Area— Federal Land and Oil and Gas Resources by Accessibility . . . . .	.189
Figure 3-59.	Chart of Results, Powder River Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.190

Figure 3-60.	Federal Land Access Categorization Map, Powder River Basin Study Area	191
Figure 3-61.	Map of Total Federal Oil, Powder River Basin Study Area	192
Figure 3-62.	Map of Total Federal Natural Gas, Powder River Basin Study Area	193
Figure 3-63.	Simplified Chart of Results, Wyoming Thrust Belt Study Area— Federal Land and Oil and Gas Resources by Accessibility	195
Figure 3-64.	Chart of Results, Wyoming Thrust Belt Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	196
Figure 3-65.	Federal Land Access Categorization Map, Wyoming Thrust Belt Study Area	197
Figure 3-66.	Map of Total Federal Oil, Wyoming Thrust Belt Study Area	198
Figure 3-67.	Map of Total Federal Natural Gas, Wyoming Thrust Belt Study Area	199
Figure 3-68.	Simplified Chart of Results, Southwestern Wyoming Study Area— Federal Land and Oil and Gas Resources by Accessibility	201
Figure 3-69.	Chart of Results, Southwestern Wyoming Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	202
Figure 3-70.	Federal Land Access Categorization Map, Southwestern Wyoming Study Area	203
Figure 3-71.	Map of Total Federal Oil, Southwestern Wyoming Study Area	204
Figure 3-72.	Map of Total Federal Natural Gas, Southwestern Wyoming Study Area	205
Figure 3-73.	Simplified Chart of Results, Denver Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility	208
Figure 3-74.	Chart of Results, Denver Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	209
Figure 3-75.	Federal Land Access Categorization Map, Denver Basin Study Area	210
Figure 3-76.	Map of Total Federal Oil, Denver Basin Study Area	211
Figure 3-77.	Map of Total Federal Natural Gas, Denver Basin Study Area.	212

Figure 3-78.	Simplified Chart of Results, Florida Peninsula Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.214
Figure 3-79.	Chart of Results, Florida Peninsula Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.215
Figure 3-80.	Federal Land Access Categorization Map, Florida Peninsula Study Area . . . . .	.216
Figure 3-81.	Map of Total Federal Oil, Florida Peninsula Study Area . . . . .	.217
Figure 3-82.	Map of Total Federal Natural Gas, Florida Peninsula Study Area . . . . .	.218
Figure 3-83.	Simplified Chart of Results, Black Warrior Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.220
Figure 3-84.	Chart of Results, Black Warrior Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.221
Figure 3-85.	Federal Land Access Categorization Map, Black Warrior Basin Study Area. . . . .	.222
Figure 3-86.	Map of Total Federal Oil, Black Warrior Basin Study Area. . . . .	.223
Figure 3-87.	Map of Total Federal Natural Gas, Black Warrior Basin Study Area. . . . .	.224
Figure 3-88.	Simplified Chart of Results, Appalachian Basin Study Area— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.227
Figure 3-89.	Chart of Results, Appalachian Basin Study Area— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.228
Figure 3-90.	Federal Land Access Categorization Map, Appalachian Basin Study Area . . . . .	.229
Figure 3-91.	Map of Total Federal Oil, Appalachian Basin Study Area. . . . .	.230
Figure 3-92.	Map of Total Federal Natural Gas, Appalachian Basin Study Area . . . . .	.231
Figure 3-93.	Simplified Chart of Results, Extrapolated Results for Alaska— Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.233

Figure 3-94.	Chart of Results, Extrapolated Results for Alaska— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.234
Figure 3-95.	Simplified Chart of Results, Extrapolated Results for the Western Region—Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.237
Figure 3-96.	Chart of Results, Extrapolated Results for the Western Region— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.238
Figure 3-97.	Simplified Chart of Results, Extrapolated Results for the Eastern Region—Federal Land and Oil and Natural Gas Resources by Accessibility . . . . .	.240
Figure 3-98.	Chart of Results, Extrapolated Results for the Eastern Region— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.241
Figure 3-99.	Charts of the Top Five Areas. . . . .	.242
Figure 3-100.	Regional Charts . . . . .	.243

Section 4.0 – Additional Federal Land Access Issues

Appendix 1 Acronyms and Abbreviations

Appendix 2 Glossary of Terms

Appendix 3 Federal Land Status Preparation

Figure A3-1.	Schematic of BLM’s Primary Land Records Databases. . . . .	.292
Figure A3-2.	Master Polygon . . . . .	.293
Figure A3-3.	Public Domain Lands . . . . .	.294
Figure A3-4.	Query of U.S. Rights Data. . . . .	.294
Figure A3-5.	Federal Split Estate Oil and Gas Ownership. . . . .	.295
Figure A3-6.	Defining Ownership . . . . .	.295
Figure A3-7.	Surface Management View . . . . .	.296
Figure A3-8.	Subsurface Oil and Gas Ownership View . . . . .	.296

Appendix 4 Federal Oil and Gas Lease Stipulation Data Preparation

Figure A4-1.	Stipulation Polygons and Study Area Boundary. . . . .	.299
Figure A4-2.	Example of Polygons after Clipping to Study Area Boundary . . .	.300

Figure A4-3. Query in ArcGIS for All “Critical Big Game Habitat” Stipulations . . . . .	.300
Figure A4-4. Attribute Table Showing All “Critical Big Game Habitat” Polygons . . . . .	.300
Figure A4-5. New Polygons Representing Land with Leasing Stipulation for “Critical Big Game Habitat”. . . . .	.301
Figure A4-6. Creation of Steep Slope Restriction Polygons. . . . .	.302
 Appendix 5 APD Conditions of Approval Data Preparation	
Figure A5-1. Example of Extrapolating the Effects of COAs on Accessibility . . . . .	.312
 Appendix 6 U.S. Geological Survey Methodology for the Assessment of Undiscovered Oil and Gas Resources	
Figure A6-1. Conventional vs. Continuous Accumulations . . . . .	.321
 Appendix 7 Initial Estimates of Remaining Proved Ultimate Recovery Growth	
Figure A7-1. Paradox-San Juan Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.335
Figure A7-2. Powder River Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.335
Figure A7-3. Uinta-Piceance Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.336
Figure A7-4. Southwestern Wyoming Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.336
Figure A7-5. Denver Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.337
Figure A7-6. Black Warrior Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.337
Figure A7-7. Wyoming Overthrust Belt Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.338
Figure A7-8. Alaska Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.338
Figure A7-9. Eastern Great Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.339

Figure A7-10. Ventura Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.339
Figure A7-11. Williston Basin Ultimate Reserve Growth, Median Method, Hyperbolic Fit . . . . .	.340
 Appendix 8 Energy Information Administration Proved Reserves Estimation and Field Boundary Construction	
Figure A8-1. Phase III Process Flows . . . . .	.349
Figure A8-2. Three Well Types . . . . .	.354
Figure A8-3. Buffer Technique for Three Well Types . . . . .	.355
Figure A8-4. Buffering Process . . . . .	.359
Figure A8-5. Field Buffers by Reservoir. . . . .	.359
Figure A8-6. Field Buffers by Field . . . . .	.360
Figure A8-7. Buffered Field Outline Issues . . . . .	.361
Figure A8-8. Tangent Trapezoid Smoothing Rules . . . . .	.363
Figure A8-9. Field Boundary Before and after Smoothing with Tangent Trapezoid Technique . . . . .	.364
Figure A8-10. Williston Basin Quality Check Map Showing Smoothed Field Outlines and Percent Federal Land. . . . .	.366
 Appendix 9 GIS Methodology	
Figure A9-1. Creation of NLA/LUP Polygons. . . . .	.373
Figure A9-2. Extended Drilling Zone Conceptual Diagram . . . . .	.376
Figure A9-3. Removal of the Extended Drilling Zone from NSO Areas . . . . .	.379
Figure A9-4. Display of Overlapping Timing Limitations (WTB Study Area). . . . .	.380
Figure A9-5. Display of Federal Land Access Categorization (WTB Study Area). . . . .	.381
Figure A9-6. Display of Federal Resource Access Categorization with Extended Drilling Zone Applied (WTB Study Area). . . . .	.382
Figure A9-7. Display of Federal Land Access Categorization with Extended Drilling Zone Applied and with Sage Grouse Nesting Habitat Stipulation Excepted (WTB Study Area). . . . .	.383
Figure A9-8. Map of EPCA Study Areas and Extrapolated Resource Areas . . . . .	.387

Appendix 10 Federal Land Use Planning Documents
Used in the Phase III Inventory

Appendix 11 Federal Oil and Gas Surface Management Prescriptions

Tables

Executive Summary

Table ES-1. Onshore United States—Total Federal Land and Oil and Natural Gas Resources by Access Category	xxx
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Section 1.0 – Introduction

Table 1-1. BLM and Forest Service Offices Participating in the Inventory.	7
---	---

Section 2.0 – Methodology

Table 2-1. Federal Land Acreage by Surface Management Agency	35
Table 2-2. Land Use Plans by Study Area	37
Table 2-3. COAs by BLM Field Office	43
Table 2-4. Undiscovered Technically Recoverable Resources by Play.	47
Table 2-5. Remaining Proved Ultimate Recovery Growth (“Reserves Growth”) by Study Area (Federal and Non-Federal	58
Table 2-6. Proved Reserves Summary Statistics	107
Table 2-7. Summary of All Federal Oil and Natural Gas Resources by Study Area and Resource Type.	108
Table 2-8. Summary of All Federal Oil and Gas Resources by Resource Type . .	110
Table 2-9. Federal Land Access Categorization Hierarchy	110

Section 3.0 – Results

Table 3-1. Onshore United States— Federal Land and Oil and Natural Gas Resources by Access Category	114
Table 3-2. Northern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	117

Table 3-3.	Central Alaska - Yukon Flats Study Area— Federal Land and Oil and Natural Gas Resources by Access Category	124
Table 3-4.	Southern Alaska Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	130
Table 3-5.	Eastern Oregon-Washington Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	137
Table 3-6.	Ventura Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	143
Table 3-7.	Eastern Great Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	149
Table 3-8.	Uinta/Piceance Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	156
Table 3-9.	Paradox Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	162
Table 3-10.	San Juan Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	168
Table 3-11.	Montana Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	175
Table 3-12.	Williston Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	181
Table 3-13.	Powder River Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	188
Table 3-14.	Wyoming Thrust Belt Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	194
Table 3-15.	Southwestern Wyoming Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	200
Table 3-16.	Denver Basin Study Area—Federal Land and Oil and Natural Gas Resources Affected by Access Category	207
Table 3-17.	Florida Peninsula Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	213
Table 3-18.	Black Warrior Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	219
Table 3-19.	Appalachian Basin Study Area—Federal Land and Oil and Natural Gas Resources by Access Category	226

Table 3-20.	Extrapolated Results for Alaska—Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.232
Table 3-21.	Extrapolated Results for the Western Region—Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.236
Table 3-22.	Extrapolated Results for the Eastern Region— Federal Land and Oil and Natural Gas Resources by Access Category . . . . .	.239
 Section 4.0 – Additional Federal Land Access Issues		
Table 4-1.	Access Issues, Northern Alaska Study Area . . . . .	.246
Table 4-2.	Access Issues, Southern Alaska Study Area . . . . .	.246
Table 4-3.	Access Issues, Eastern Oregon-Washington Study Area . . . . .	.246
Table 4-4.	Access Issues, Ventura Basin Study Area . . . . .	.248
Table 4-5.	Access Issues, Eastern Great Basin Study Area . . . . .	.250
Table 4-6.	Access Issues, Paradox Basin Study Area . . . . .	.252
Table 4-7.	Access Issues, San Juan Basin Study Area . . . . .	.254
Table 4-8.	Access Issues, Montana Thrust Belt Study Area . . . . .	.256
Table 4-9.	Access Issues, Williston Basin Study Area . . . . .	.258
Table 4-10.	Access Issues, Powder River Basin Study Area. . . . .	.258
Table 4-11.	Access Issues, Wyoming Thrust Belt Study Area . . . . .	.262
Table 4-12.	Access Issues, Southwestern Wyoming Study Area . . . . .	.262
Table 4-13.	Access Issues, Denver Basin Study Area . . . . .	.264
Table 4-14.	Access Issues, Florida Peninsula Study Area . . . . .	.266
Table 4-15.	Access Issues, Black Warrior Basin Study Area. . . . .	.268
Table 4-16.	Access Issues, Appalachian Basin Study Area . . . . .	.268
 Appendix 1 Acronyms and Abbreviations		
 Appendix 2 Glossary of Terms		
 Appendix 3 Federal Land Status Preparation		
Table A3-1.	Polygon Attributes from the LR-2000 Datasets . . . . .	.293
Table A3-2.	Typical CarteView Input File . . . . .	.294
 Appendix 4 Federal Oil and Gas Lease Stipulation Data Preparation		

Appendix 5	ADP Conditions of Approval Data Preparation	
Table A5-1.	Study Areas Sampled for COAs . . . . .	.307
Table A5-2.	BLM Field Offices for Which COAs Data Were Abstracted . . . . .	.307
Table A5-3.	Stratified Random Sampling Guidance . . . . .	.308
Table A5-4a.	Findings from Interviews with BLM Field Personnel – Applicant Funded Surveys. . . . .	.309
Table A5-4b.	Findings from Interviews with BLM Field Personnel – Prohibitive Lease Stipulations/COAs . . . . .	.310
Table A5-5.	COA Statistics by Field Office. . . . .	.313
Appendix 6	U.S. Geological Survey Methodology for the Assessment of Undiscovered Oil and Gas Resources	
Appendix 7	Energy Information Administration Initial Estimates of Remaining Proved Ultimate Recovery Growth	
Table A7-1.	EPCA I Median Method, Hyperbolic Fit, 300 Year Ultimate Recovery Growth . . . . .	.333
Table A7-2.	EPCA II Median Method, Hyperbolic Fit, 300 Year Ultimate Recovery Growth . . . . .	.334
Table A7-3.	EPCA III Median Method, Hyperbolic Fit, 300 Year Ultimate Recovery Growth . . . . .	.334
Appendix 8	Energy Information Administration Proved Reserves Estimation and Field Boundary Construction	
Table A8-1.	Targeted Basins and Their State and County Affiliations . . . . .	.344
Table A8-2.	Links to Websites Used in Phase III . . . . .	.346
Table A8-3.	State Agencies Contacted in EPCA Phase III . . . . .	.346
Table A8-4.	Well Data Sources by State Used for EPCA Phase III. . . . .	.350
Table A8-5.	Inter-Well Distance Ranges, Nominal Standard Well Spacings, and Buffer Radii. . . . .	.356
Table A8-6.	Regression Equation Parameters for the Estimation of Non-Reported Reserves for EPCA Phase III . . . . .	.367
Table A8-7.	Field Count, BOE Production & BOE Reserves for Four Reserve Types in Each Study Area/Basin of EPCA Phase III . . . . .	.368
Table A8-8.	Summary of 2004 Federal Lands Proved Reserves by Study Area for EPCA Phase III. . . . .	.370

Appendix 9 GIS Methodology

Table A9-1.	Jurisdictions Classified as NLA/LUP . . . . .	.371
Table A9-2.	Federal Land Categorization. . . . .	.372
Table A9-3.	Stipulation Exception Factors by FS and BLM Office . . . . .	.374
Table A9-4.	Exception Factors Example for Overlapping Stipulations (WTB Study Area). . . . .	.376
Table A9-5.	Extended Drilling Zones by Jurisdiction . . . . .	.377
Table A9-6.	Sample Master Stipulations List for a Selected Area . . . . .	.381
Table A9-7.	Resources Associated with Extrapolated USGS 1995 NOGA and EPCA-Updated Basins . . . . .	.385
Table A9-8.	Extrapolated BLM and FS Areas . . . . .	.388

Appendix 10 Federal Land Use Planning Documents Used in the Phase III Inventory

Appendix 11 Federal Oil and Gas Surface Management Prescriptions

Executive Summary

The Mandate From Congress

In November 2000, Congress enacted the Energy Act of 2000, as amended (also referred to as the Energy Policy and Conservation Act [EPCA]). The Act directed the Secretary of the Interior, in consultation with the Secretaries of Agriculture and Energy, to conduct an inventory of oil and natural gas resources beneath onshore Federal lands:¹

The inventory shall identify:

- 1) the United States Geological Survey estimates of oil and gas resources underlying these lands;
- 2) the extent and nature of any restrictions or impediments to the development of the resources, including:
 - (A) impediments to the timely granting of leases;
 - (B) post-lease restrictions, impediments, or delays on development for conditions of approval, applications for permits to drill, or processing of environmental permits

The EPCA marked the first time that Congress asked the Department of the Interior to conduct a study of restrictions.

On October 11, 2001, Congress provided its sense of priority for this study:
. . . in light of recent attacks on the United States that have underscored the potential

for disruptions to America's energy supply, the managers believe this project should be considered a top priority for the Department.

In August 2005, Congress enacted the Energy Policy Act of 2005 (EPAAct 2005). Section 364 of this Act amends the inventory requirements of EPCA.²

This EPCA Phase III Inventory (Inventory) includes, for the first time, the entire onshore United States. This release is composed of a detailed review of Federal oil and gas resources and constraints on their development within 18 geological provinces. In addition, the rest of the country was extrapolated from the results of these provinces studied in detail (Figure ES-1).

For the Federal agencies that manage public land (principally the Department of the Interior's Bureau of Land Management [BLM] and the United States Department of Agriculture-Forest Service [FS]) and the citizens they serve, this Inventory will serve primarily as a planning tool. It provides public land managers with additional information to help them develop management plans for the lands under their jurisdiction. It enables them to identify areas of high oil and natural gas potential and to evaluate the effectiveness of mitigating stipulations and conditions of approval (COAs) while balancing the development with the protection of other valuable resources in the area. The Inventory offers additional information for

¹ Federal lands are defined as not including Indian lands.

² EPAAct 2005 amends the inventory requirements at 42 USC 6217. The updates have been reflected in the text of this document.

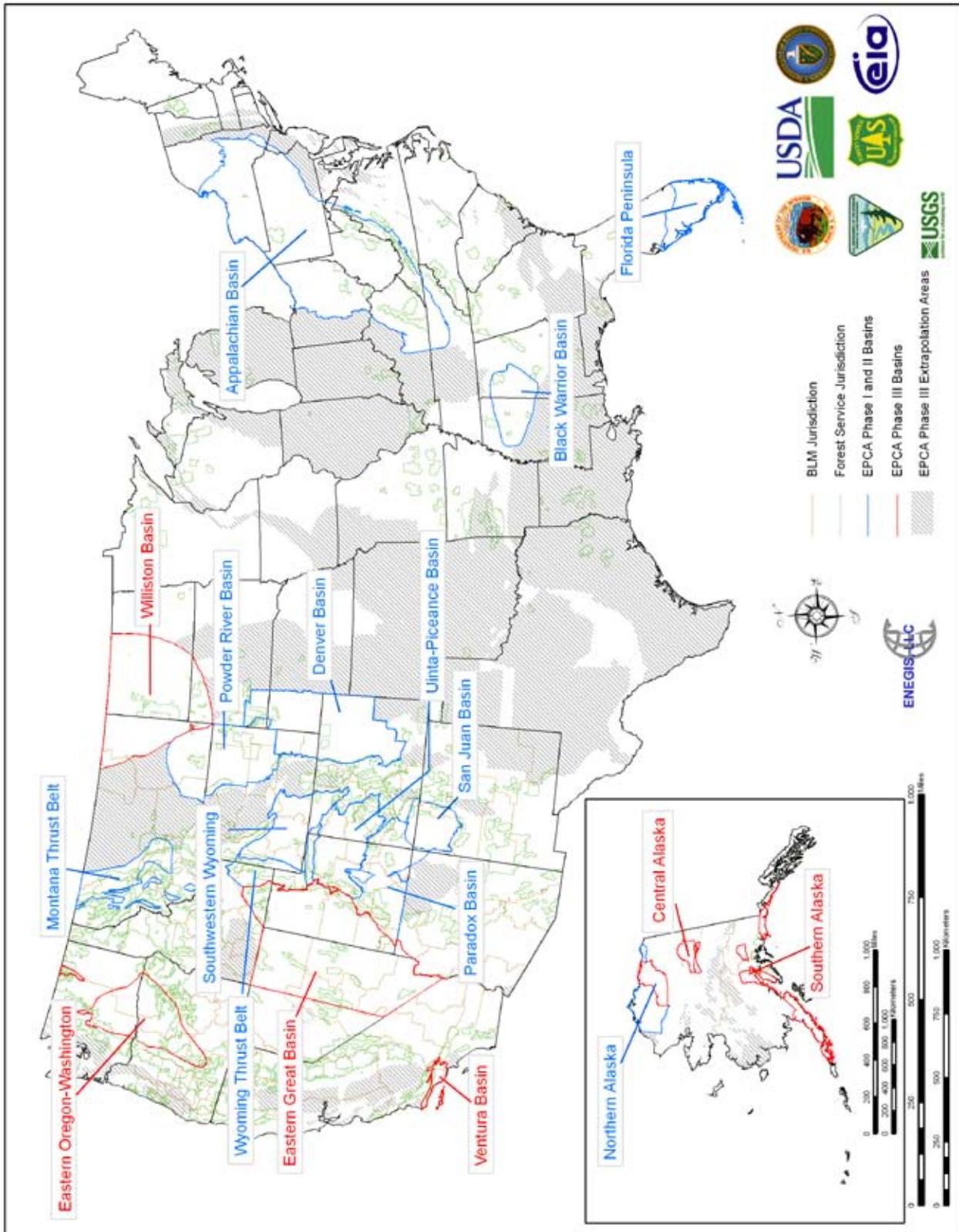


Figure ES-1. Study Area Locations

resource managers to identify areas of low oil and gas potential, but high potential for other resource (e.g., wildlife habitat) values or uses (e.g., recreation). In these situations, resource managers and oil and gas operators can consider applying land management strategies that promote increased protection of other valuable resources or uses that might ordinarily conflict with oil or gas development. This report is a critical step in evaluating whether the documented impediments and restrictions are appropriate, and to what extent they constrain oil and gas development.

This Inventory provides information regarding the geographical relationship between oil and gas resources and the constraints that govern their development. It is not a reassessment of any stipulations or COAs on the development of oil and gas resources. The public's opportunity to participate in any change of restrictions on oil and gas activities will occur during the land use planning or legislative process. This Inventory provides basic information. Additional information may be available from monitoring and scientific studies incorporated into adaptive management processes.

This Inventory was prepared under the lead of the BLM. Senior professionals from the Department of the Interior's BLM and United States Geological Survey (USGS), the FS; the Department of Energy (DOE)-Office of Fossil Energy, and the Energy Information Administration (EIA) were the major contributors. The USGS provided the assessment of undiscovered technically recoverable oil and natural gas resources for Federal lands. The EIA contributed the estimate of reserves growth and proved reserves for Federal lands. The DOE provided technical expertise to guide

the design and analysis process for the Inventory. Field offices of the BLM and the FS contributed their land use planning information regarding oil and natural gas availability and leasing stipulations for the lands under their respective jurisdictions.

Methodology

This Inventory is based on information that was previously developed through the scientific and land use planning processes of the contributing Federal agencies. This information, in large part, was provided to the public for its review and use and is the best that is commercially and scientifically available. It was compiled and analyzed by experts from the contributing agencies. The analytical methods and protocols used in the supporting studies were subjected to rigorous review. The present study necessarily incorporates the assumptions, conditions, and limitations of the supporting scientific information, as discussed in this report. This Inventory is significant because it builds upon the process established in the EPCA Phase I and II Inventories, and now covers Federal lands throughout the United States. It examines oil and natural gas (undiscovered technically recoverable resources and reserves growth) in context with information about constraints on the resource's development.

The Inventory examines in detail six geological provinces in addition to the twelve included in the Phase II of EPCA. These six provinces are Central Alaska (Yukon Flats portion); Southern Alaska; Eastern Oregon-Washington; the Ventura Basin in California; the Eastern Great Basin in Idaho, Nevada, Utah and Arizona; and the Williston Basin in Montana, North Dakota and South Dakota.

The Inventory encompasses the 1.2 billion acres of land that the USGS inventoried as a part of its National Oil and Gas Assessment (NOGA), of which about 279 million are under Federal management. This acreage includes split-estate lands where lands with non-Federal surface are underlain by Federal mineral rights.

This analysis of constraints to development centers on two factors that affect access to oil and gas resources on Federal lands. These factors are: (1) whether the lands are “open” or “closed” to leasing (i.e., accessible or inaccessible), and (2) the degree of access afforded by lease stipulations and other conditions on “open” lands (some leasable lands may in effect be “closed” if no drilling can occur). All oil and gas leases are subject to a baseline level of constraint governed by statutory and regulatory requirements (standard lease terms³). These stipulations serve many purposes, ranging from the protection of environmental, social, historical, or cultural resources or values to the payment of rentals and royalties.

The Inventory finds that approximately 3,125 individual lease stipulations are being applied, in addition to the aforementioned standard lease terms, by the land managing agencies in the areas analyzed in detail. To focus the analysis of constraints on oil and gas development, the Inventory evaluates the onshore Federal lands: (1) where leasing is permitted under standard lease terms; (2) where leasing is permitted with varying limitations on access, principally seasonal occupancy restrictions; and (3) where oil and gas leasing is precluded or prohibited.

³ See the “LEASE TERMS” section of the BLM form 3100-11 at http://www.blm.gov/style/medialib/blm/wy/minerals/og/ogforms.Par.9931.File.dat/Form_3100-11.pdf

The Inventory also considers exceptions to stipulations that may be granted after a review of on-the-ground conditions and the use of modern technologies such as directional drilling. The impact of COAs attached to Federal drilling permits is also analyzed, which gives a more complete assessment of access constraints. A total of 157 unique COAs were identified and their effects on development evaluated. The nine categories of constraints analyzed in this report include the complete range of access restrictions associated with oil and gas leasing.

Results

The results of this Inventory are unique for each of the eighteen comprehensively studied areas examined. The aggregate results for all of the study areas and extrapolated areas (Table ES-1, Figure ES-2, and Figure ES-3) are summarized below.

- Federal lands with potential for oil or natural gas resources, including split-estate minerals, total 279.0 million acres.
- Undeveloped oil resources under these Federal lands total 30.5 billion barrels, comprising 24.2 billion barrels of undiscovered technically recoverable resources and 6.3 billion barrels of reserves growth.
- Undeveloped gas resources under these Federal lands total 231.0 trillion cubic feet, comprising 214.1 trillion cubic feet of undiscovered technically recoverable resources and 16.9 trillion cubic feet of reserves growth.
- Total proved reserves under these Federal lands total 5.3 billion barrels of oil and 68.8 trillion cubic feet of natural gas.
- Approximately 60 percent (165.9 million acres) of the Federal land

is inaccessible. Based on resource estimates, these lands contain about 62 percent of the oil (19.0 billion barrels) and 41 percent of the natural gas (94.5 trillion cubic feet).

- Approximately 23 percent (65.2 million acres) of the Federal land is accessible with restrictions on oil and gas operations beyond standard stipulations. Based on resource estimates, these lands contain 30 percent of the oil (9.3 billion barrels) and 49 percent of the gas (112.9 trillion cubic feet).
- Approximately 17 percent of the Federal land in these areas (48.0 million acres) is accessible under standard lease terms. Based on resource estimates, these lands contain 8 percent of the oil (2.3 billion barrels) and 10 percent of the gas (23.6 trillion cubic feet).

Overall the study shows that oil and gas resources are most concentrated in Northern Alaska and the Interior West. Figure ES-4 summarizes the accessibility of these resources on a quadrillion British thermal unit (quad) basis⁴.

Compliance With The Law

All oil and gas leases on Federal lands, including those issued with only the standard lease terms, are subject to full compliance with all environmental laws and regulations. These laws include, but are not limited to, the National Environmental Policy Act, Clean Water Act, Clean Air Act, Endangered Species Act, and National Historic Preservation Act. While compliance with these laws may delay, modify, or prohibit oil and gas activities, these laws represent the values and bounds Congress believes appropriate to manage Federal lands. The present study was requested by Congress to provide information to deliberate on the role of Federal lands in contributing to the U.S. energy supply.

It is important to emphasize that this Inventory was prepared at the direction of Congress. It is not a decision-making document. The Inventory identifies Federal land areas of varying oil and natural gas potential and the nature of constraints to the development of those resources across the U.S. Any reassessment of restrictions on oil and gas activities will occur as part of the public land use planning or legislative processes, both of which are fully open to public participation and debate about the appropriate balance between resource protection and resource development.

⁴ One quad BTU is equivalent to 0.9756 TCF or 172.4 MMBO.

Table ES-1. Onshore United States—Total Federal Land and Oil and Natural Gas Resources by Access Category

Access Category			Area		Resources ^a			
					Total Oil ^b		Total Gas ^c	
			(acres x 1000)	Percent of Federal	(MMbbls) ^d	Percent of Federal	(BCF) ^e	Percent of Federal
More Constrained ↑ Less Constrained	1.	No Leasing (Statutory/ Executive Order) (NLS)	39,945	14.3%	9,054	29.7%	19,449	8.4%
	2.	No Leasing (Administrative) (NLA)	50,414	18.1%	2,461	8.1%	16,618	7.2%
	3.	No Leasing (Administrative) Pending Land Use Planning or NEPA Compliance (NLA/LUP)	55,278	19.8%	6,684	21.9%	49,814	21.6%
	4.	Leasing, No Surface Occupancy (NSO) (Net NSO for O&G Resources)	20,245	7.3%	777	2.5%	8,621	3.7%
	5.	Leasing, Cumulative Timing Limitations (TLs) of >9 Months	283	0.1%	32	0.1%	430	0.2%
	6.	Leasing, Cumulative Timing Limitations (TLs) of >6 to ≤9 Months	11,883	4.3%	5,198	17.0%	40,021	17.3%
	7.	Leasing, Cumulative Timing Limitations (TLs) of >3 to ≤6 Months	18,389	6.6%	1,799	5.9%	35,751	15.5%
	8.	Leasing, Controlled Surface Use (CSU) ^f	34,631	12.4%	2,231	7.3%	36,716	15.9%
	9.	Leasing, Standard Lease Terms (SLTs)	47,972	17.2%	2,268	7.5%	23,554	10.2%
Total, Federal Lands including Split Estate			279,039	100%	30,503	100%	230,975	100%
Total Non-Federal			936,414		58,056		423,282	
Total Inventory Area			1,215,453		88,560		654,256	
Summary								
Inaccessible (Categories 1-4)			165,882	60%	18,976	62%	94,502	41%
Accessible with Restrictions (Categories 5-8)			65,186	23%	9,260	30%	112,919	49%
Accessible under Standard Lease Terms (Category 9)			47,972	17%	2,268	8%	23,554	10%
Total, Federal Lands Including Split Estate			279,039	100%	30,503	100%	230,975	100%

^a Undiscovered technically recoverable resources and reserves growth

Small rounding errors may be present.

^b Including oil, natural gas liquids (NGLs) and liquids associated with natural gas reservoirs^c Including associated dissolved and nonassociated natural gas^d Million barrels^e Billion cubic feet^f Includes Cumulative Timing Limitations of ≤3 months

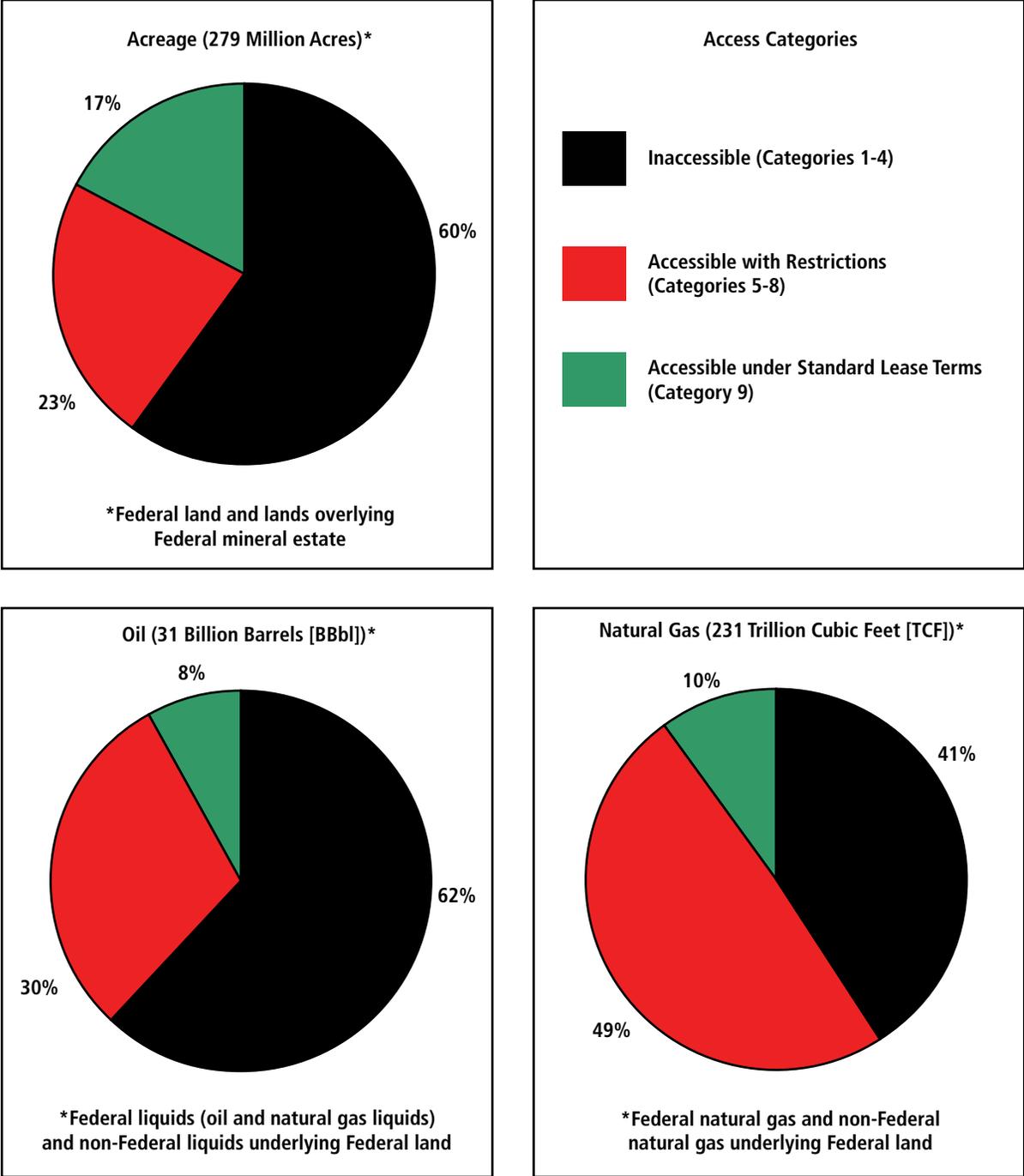


Figure ES-2. Simplified Chart of Results; Onshore United States—Total Federal Land and Oil and Natural Gas Resources* by Accessibility

* Undiscovered technically recoverable resources and reserves growth.

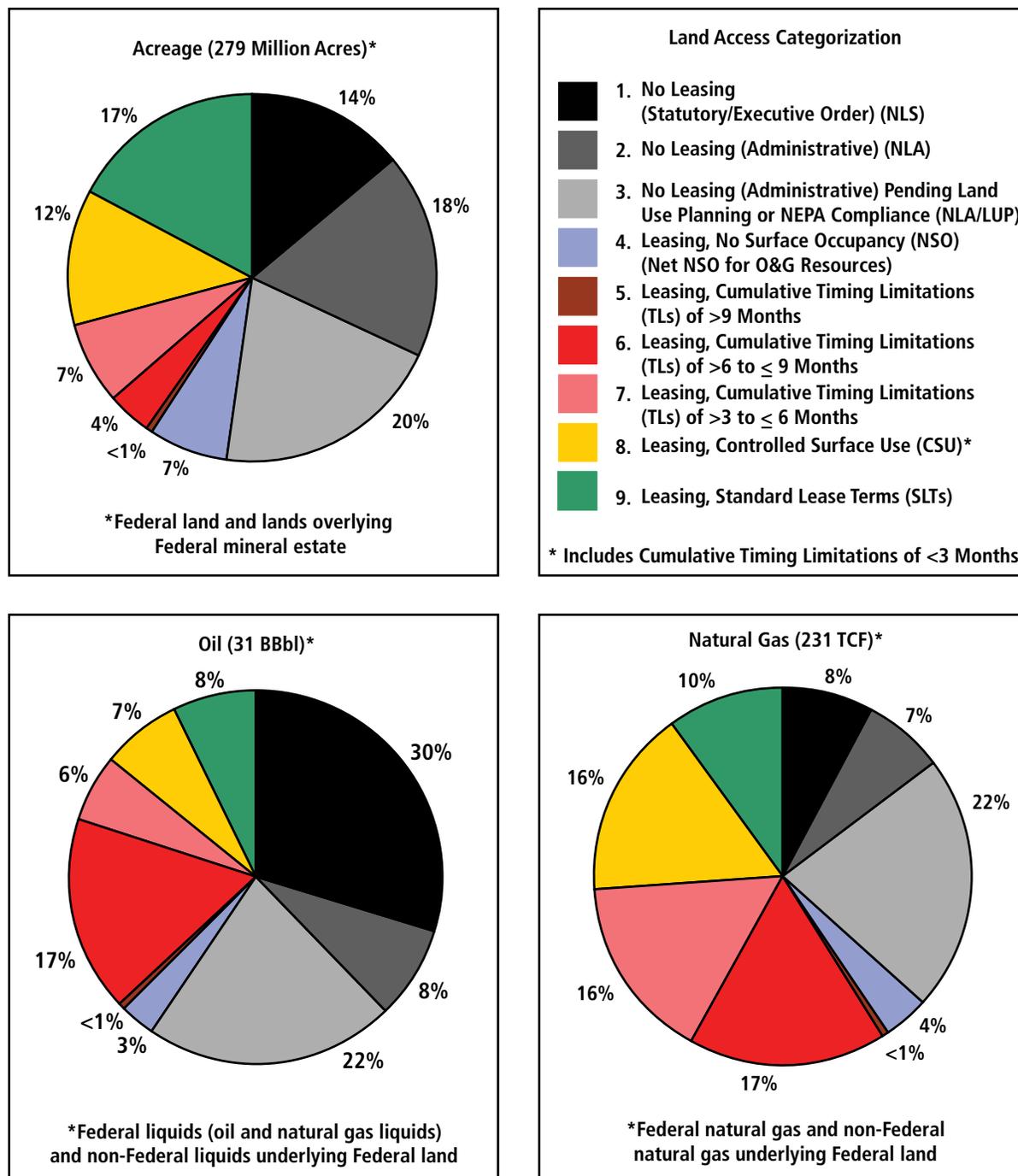


Figure ES-3. Chart of Results; Onshore United States—Total Federal Land and Oil and Natural Gas Resources* by Access Category

* Undiscovered technically recoverable resources and reserves growth.

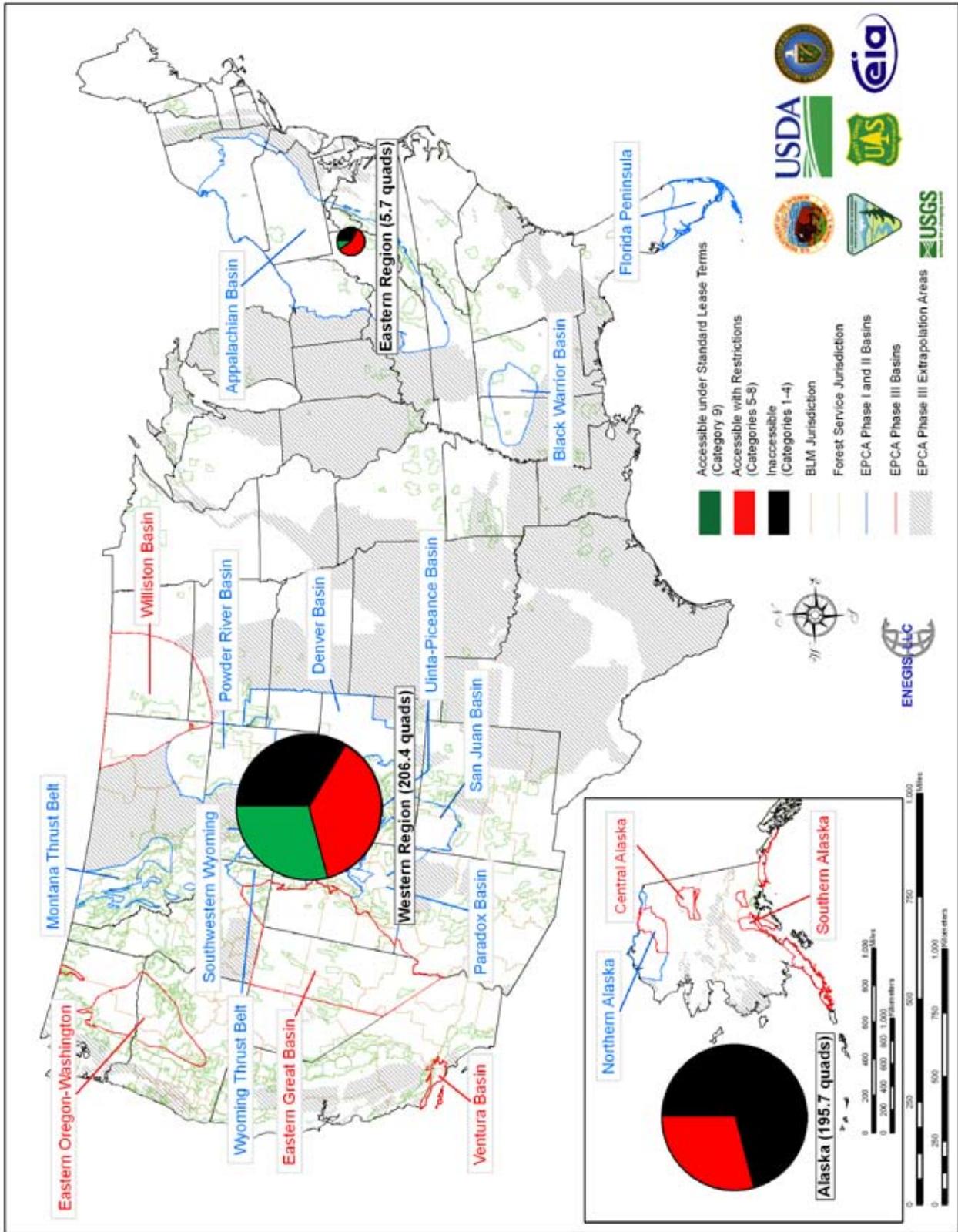


Figure ES-4. Regional Charts

